Problem 1(i). Write or modify a computer program to implement Newton’s method and use it to approximate the solution to \( x^3 = \cos x \) starting with an initial guess of \( x_0 = 1 \). Print the first 5 iterations of the method.

```c
#include <stdio.h>
#include <math.h>

double f(double x) {
    return x*x*x-cos(x);
}
double df(double x) {
    // Always set this to \( f'(x) \) where \( f(x) \) is defined above.
    return 3*x*x+sin(x);
}

int main() {
    printf("Math/CS 466/666 Midterm
Problem 1(i).

\n\n%3s %24s\n", "n", "xn");
    double x=1;
    for(int i=0;i++)
        printf("%3d %24.14e\n", i, x);
        if(i>=5) break;
        x=x-f(x)/df(x); // \( x_{i+1} = x_i - f(x_i)/f'(x_i) \)
    }
```